

What is claimed is:

1 SUB A17

2 1. Apparatus for performing location-dependent data processing operations comprising,
3 in combination,
4 a relational database management system for creating and updating data structures
5 describing objects, said data structures including means for storing data specifying the
6 geographic location of at least selected ones of said objects,
7 means for storing reference data describing a plurality of system defined regions, said
8 reference data including the specification of the geographic location of each given one of said
9 system defined regions and a human interpretable description of each given one of said regions,
10 a user-manipulated control for selecting a particular one of said regions, and
11 means responsive to said control for transferring selected items of said reference data to
said means for storing geographic location data associated with one of said objects.

1 2. Apparatus as set forth in claim 1 wherein said data structures describing objects are
2 relational tables describing one or more services each having a geographic location serving one
3 of said system defined regions.

1 3. Apparatus as set forth in claim 1 wherein said means for storing reference data
2 includes means for storing said reference data in a hierarchy of regions.

1 4. Apparatus as set forth in claim 3 wherein said hierarchy of regions consists of a
2 parent-child hierarchy of levels holding regions of decreasing size characterized by each child
3 region having a geographical extent the lies within the geographical extent of its parent region.

1 5. Apparatus as set forth in claim 3 wherein said reference data defines the boundaries of
2 each of said regions and wherein any first region having defined boundaries within the
3 boundaries of a region is nested within said second region within said hierarchy.

1 6. Apparatus as set forth in claim 1 wherein said user-manipulated control includes
2 means for selecting and combining a plurality of said regions to define a new user-specified
3 region which combine said plurality of said regions.

1 7. Apparatus as set forth in claim 6 wherein said means responsive to said control
2 includes means for transferring information describing said new user-defined region to said
3 means for storing data specifying the geographic location of one of said objects.

1 8. In combination with a relational database management system for creating and
2 updating data structures describing objects, said data structures including means for storing data
3 specifying geographic locations associated with of at least selected ones of said objects,

4 means for storing reference data describing a plurality of system defined regions, said
5 reference data including the specification of the geographic boundaries of each given one of said
6 system defined regions and further including data comprising a human interpretable description
7 of each given one of said regions, said reference data being organized in a hierarchy of parent-
8 child levels wherein each child region have geographic boundaries lying within the geographic
9 boundaries of its parent region,

10 a user-manipulated control for selecting a particular one of said regions and a particular
11 one of said objects, and

12 means responsive to said control for transferring data describing said particular one of
13 said regions to said data structures to specify a geographic location associated with said particular
14 one of said objects.

1 9. Apparatus as set forth in claim 8 wherein said user-manipulated control includes
2 means for selecting and combining a plurality of said regions to define a new user-specified
3 region which combine said plurality of said regions.

1 10. Apparatus as set forth in claim 9 wherein said means responsive to said control
2 includes means for transferring information describing said new user-defined region to said data
3 structures to specify a geographic location associated with said particular one of said objects.

1 11. A method for performing location-dependent data processing operations comprising,
2 in combination, the steps of
3 creating and updating data structures describing objects in a relational database
4 management system, said data structures including data structures for storing the geographic
5 location of at least selected ones of said objects,
6 storing reference data describing a plurality of system defined regions, said reference data
7 including the specification of the geographic location of each given one of said system defined
8 regions and a human interpretable description of each given one of said regions,
9 employing a user-manipulated control for selecting a particular one of said regions, and
10 transferring items of said reference data selected using said control to said data structures
11 to associate said particular one of said regions with one of said objects.

1 12. The method set forth in claim 11 wherein said data structures describing objects are
2 relational tables describing one or more services each having a geographic location serving one
3 of said system defined regions.

1 13. The method set forth in claim 11 wherein said step of storing reference data includes
2 the step of storing said reference data in a hierarchy of regions.

1 14. The method set forth in claim 13 wherein said hierarchy of regions consists of a
2 parent-child hierarchy of levels holding regions of decreasing size characterized by each child
3 region having a geographical extent the lies within the geographical extent of its parent region.

1 15. The method set forth in claim 13 wherein said reference data defines the boundaries
2 of each of said regions and wherein any first region having defined boundaries within the
3 boundaries of a region is nested within said second region within said hierarchy.

1 16. The method set forth in claim 11 wherein said step of employing a user-manipulated
2 control user-manipulated control includes the step of selecting and combining a plurality of said
3 regions to define a new user-specified region which combine said plurality of said regions.

1 17. The method set forth in claim 16 wherein said step of employing a user-manipulated
2 control for selecting a particular one of said regions further includes the step of transferring
3 information describing said new user-defined region to said data structures to associate said new
4 user-defined region with one of said objects.

1 18. The method of creating and updating data structures describing objects a relational
2 database management system, said data structures including data specifying a geographic
3 location associated with of at least one of said objects, said method comprising the steps of:

4 storing reference data describing a plurality of system defined regions, said reference data
5 including the specification of the geographic boundaries of each given one of said system defined
6 regions and further including data comprising a human interpretable description of each given
7 one of said regions, said reference data being organized in a hierarchy of parent-child levels
8 wherein each child region have geographic boundaries lying within the geographic boundaries of
9 its parent region,

10 employing a user-manipulated control to select a particular one of said regions and a
11 particular one of said objects, and

12 transferring data describing said particular one of said regions to said data structures to
13 specify a geographic location associated with said particular one of said objects.

1 19. The method set forth in claim 18 wherein said step of employing a user-manipulated
2 control to select a particular one of said regions includes the step of selecting and combining a

1 plurality of said regions to define a new user-specified region having geographic boundaries
2 which encompass the boundaries of all of said plurality of said regions.

1 20. Apparatus as set forth in claim 19 wherein said step of transferring data consists of
2 the step of transferring information describing said new user-defined region to said data
3 structures to specify a geographic location associated with said particular one of said objects.

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